

DESCRIPTION

SEARCH SUPPORT DEVICE AND METHOD, AND RECORDING
MEDIUM STORING PROGRAM FOR COMPUTER TO CARRY OUT
5 OPERATION WITH SAID SEARCH SUPPORT DEVICE

TECHNICAL FIELD

The present invention relates to a search support device and method, and, more particularly,
10 to a search support device and method by which URL addresses are classified into different categories. The present invention also relates to a recording medium that stores a program for a computer to perform an operation with the search support device.

15

BACKGROUND ART

Today, the Internet has widely spread as a computer network used across the world. There are no governments or organizations that manage the Internet, but a large number of groups operate and support the Internet in terms of technology and resource. The services and information that are available on the Internet are developing day by day with the evolution of technology, and it is never 25 easy to quickly obtain desired information from the Internet.

In order to obtain desired information from the huge amount of information on the Internet, search engines have been developed. A search engine 30 is a system specially developed for search. There are three types of search engines: a first one is a keyword-inputting type; a second one is a categorized type; and a third one is a keyword-inputting and categorized type.

35

A user of the Internet normally acquires information from hypertext documents written in the HTML (HyperText Markup Language) accumulated in the

WWW (World Wide Web) server. Each of the hypertext documents is called a "homepage". A user can access a homepage by software developed for accessing files in the HTML. This software is called "browser".

5 When a user searches for information, the URL (Uniform Resource Locators) that indicates the location of the homepage containing the desired information on the Internet is searched for by the search engine, and the user accesses the homepage at
10 the obtained address with the browser.

If the user comes to like the homepage accessed through the search, the user can register the URL address of the homepage, using one of the functions of the browser. The name of this function
15 might vary depending on which browser is used, but will be hereinafter referred to as "bookmark" in this specification.

A URL address is normally made up of a plurality of character strings, and needs to be
20 inputted every time an access is made to a homepage. However, while a homepage is being accessed, the bookmark is registered, so that the homepage can be promptly accessed by simply selecting the URL address from a list of registered bookmarks next
25 time the user makes an access to the homepage.

Referring now to FIGS. 1 to 3B, the processes for searching for a homepage supposedly containing desired information with a search engine and registering the bookmark for the homepage will
30 be described. FIG. 1 is a flowchart of a series of processes for homepage search and bookmark registration. FIGS. 2A to 3B show examples of browser screens displayed on a display unit.

When the search engine is activated, a
35 keyword input stand-by screen is displayed as shown in FIG. 2A in step S10. If the user wish to search for a homepage on weather forecast, for instance,

TOKYO=20011960

the user inputs the words "weather forecast" as a search keyword in step S11, and the search process is then carried out in step S12. As a result of the search process, a plurality of titles of homepages starting from "weather across the country" is displayed as shown in FIG. 2B.

The user then determines whether or not it is necessary to limit the desired information to a more specific keyword in step S13. If it is determined that the desired information should be more limited ("YES" in step S13), the user again inputs the more specific keyword in step S14, and the search process is carried out in step S12.

For instance, if the user wish to acquire some information on the weather in the Kanto region, instead of the weather across the country, the user inputs the words "Kanto region" as a keyword, as shown in FIG. 2C in step S14, and the search process is again carried out in step S12. As a result of the search process, a plurality of homepages starting from a homepage entitled "Weather Report in the Kanto Region" are displayed as shown in FIG. 2C.

The user again determines whether or not the keyword for the necessary information should be further limited in step S13. If there is no need to limit the keyword ("NO" in step S13), a homepage the user wish to access is selected from the list of homepages and then accessed as shown in FIG. 2D in step S17.

It is then determined whether or not a bookmark registration should be carried out for the accessed homepage in step S15. If it is determined that the bookmark registration should be carried out for the accessed homepage ("YES" in step S15), the bookmark registration is carried out as shown in FIG. 3A in step S16. For instance, the item "bookmark" shown in FIG. 2D is selected to register the URL of

the currently accessed homepage along with its title.

With the bookmark registration, the homepage entitled "Weather Report in the Kanto Region" is promptly accessed and displayed, as shown 5 in FIG. 3B, by simply selecting the title from the list of registered bookmarks shown in FIG. 3A. If it is determined that the bookmark registration is not necessary for the accessed homepage ("NO" in step S15), the bookmark registration is not carried 10 out for the accessed homepage.

As described above, the bookmark registration is carried out for a homepage to be frequently accessed, so that an access can be easily made to the homepage.

15 However, the information including the URL address of each registered homepage (hereinafter referred to as "homepage information") is registered as the list of registered bookmarks as shown in FIG. 3A. As the number of registered bookmarks increases, 20 it becomes more difficult to select a desired homepage. Also, homepages having similar information might be mistaken for each other.

In such a case, the user may categorize the registered bookmark information. However, such 25 a process complicates the overall operation.

Meanwhile, the categories used with the search engine are predetermined by the homepage of search engine. As a result, the search cannot be carried out using categories that are easy for the 30 user to recognize.

Furthermore, the user needs to use predetermined characters for each keyword, otherwise the homepage containing desired information cannot be searched for.

35 If the user does not use the predetermined characters for a search keyword, the user repeatedly inputs a search keyword and repeats the search

process, which results in a longer line using time and a higher line charge.

DISCLOSURE THE INVENTION

5 The present invention aims to solve the above problems, and a first object of the present invention is to provide a search support device and method by which a user can register homepage information classified into various categories

10 through a simple operation.

A second object of the present invention is to provide a search support device and method that can construct a category menu in which information is classified into categories easy for 15 users to understand, generate a search character string used for a search process by a search engine based on the selection of the category menu, and restrict an increase in line charge by shortening the usage time of the telephone line.

20 A third object of the present invention is to provide a recording medium that stores a program for a computer to perform an operation with the above search support device.

To achieve the first object, the present 25 invention provides a search support device which registers an address indicating the location of information that can be accessed on a network. This search support device includes: a search unit that determines the category of an address designated for 30 registration based on a registered address; and a registration unit that registers an address under the determined category.

With this search support device, a user uses a search engine to search for a homepage 35 containing desired information among homepages written in the HTML format accumulated on the WWW sever on the Internet. Here, the user inputs search

information associated with the desired information into the search engine, thereby detecting the homepage containing the search information.

The user then actually accesses the
5 detected homepage with the browser, and checks the contents. If there is a homepage the user comes to like, the information such as the address and title of the homepage can be registered in a bookmark registration process. In this case, the search
10 support device of the present invention classifies the information such as the address and title of the homepage requested for the bookmark registration.

The search information inputted into the search engine is formed by a search character string
15 that is considered to be related to the desired information. Accordingly, by analyzing and registering the information such as the address of the homepage based on the search information, all the information can be classified into categories
20 that the user can easily recognize.

When located on the same level as an address designated for registration, the address should be registered under the category in which an address has already been registered. In view of
25 this, the registration unit of the search support device of the present invention may register an address designated for registration under the category in which an address has already been registered.

30 With this search support device, an address designated for registration can be additionally registered in the category of a registered address.

Further, to achieve the first object, the
35 present invention provides a search support method in which an address indicating the location of information accessible on a network. This method

includes the steps of: determining a category of an address designated for registration based on an address that has already been registered; and registering an address in the determined category.

5 To achieve the second object, the present invention provides a search support device in which a search process for an address indicating the location of desired information on a network is requested based on search information associated
10 with the desired information. This search support device includes: a category menu storage unit that stores a category menu in which predetermined categories are listed up; and a search information generation unit that generates search information
15 associated with a category selected from the category menu.

With such a search support device, a category menu in which information is classified into categories is formed in a client computer,
20 without the use of the categories prepared in a homepage containing a search engine. The category menu prepared in the client computer may be produced by a user, or produced based on data supplied from a server computer.

25 The category menu prepared in the client computer contains search information related to each category. Accordingly, a user selects a category containing desired information from the category menu prepared in the client computer, thereby
30 automatically producing search information to be inputted into the search engine. In this manner, when a user searches for a homepage containing desired information, a suitable search character string is automatically inputted. Thus, the line
35 using time can be shortened, and the telephone charge can be restricted.

The information such as the location and

title of a homepage that has been registered through a bookmark registration process can be registered in association with the category menu prepared in the client computer. In view of this, the search support device of the present invention may further include an address registration unit that registers an address indicating the location of the desired information searched for based on the search information generated by the search information generation unit in the category menu, if the information at the address is accessible.

With this search support device, the information such as the location and title of a homepage searched for is classified in accordance with information that can be accessed at the address, and registered as a part of the category menu prepared in the client computer. As a result, even if the amount of homepage information to be registered becomes voluminous, the information of a desired homepage can be easily selected by carrying out a search process in accordance with the category menu.

Also, the information of a homepage registered as a part of the category menu prepared in the client computer is selected so as to make an access to the homepage. In view of this, the search support device of the present invention may include an address selection unit that accesses the location of desired information by selecting an address registered in the category menu.

In such a search support device, the information of a desired homepage can be easily selected in accordance with the category menu. From the information of the selected homepage, the search support device acquires the address of the homepage, and makes an easy access to the homepage with the browser.

If homepage information is registered as a part of the category menu, the category in which the homepage information is registered can be made visually recognizable. In view of this, the search support device of the present invention may further include an icon conversion unit that visually changes the category in which the address is registered by the address registration unit.

In such a search support device, if there is homepage information to be added as a part of the category menu, the icon of the category that contains the information of the added homepage can be visually changed when the category menu is displayed on the display unit. As a result, the category containing the additionally registered homepage information can be visually recognized.

Further, to achieve the second object, the present invention provides a search support method in which a search process for an address indicating the location of desired information on a network is requested based on search information associated with the desired information. This search support method includes the steps of: storing a category menu in which predetermined categories are listed up; and generating search information related to a category selected from the category menu.

To achieve the third object, the present invention also provides a recording medium that stores a program for a computer to perform an operation with a search support device in which an address indicating the location of information accessible on a network is registered. The program stored in the recording medium includes: a procedure for classifying the address in accordance with a category associated with the accessible information; and a procedure for registering the address classified in accordance with the category.

2025410-B0074360

The present invention also provides a recording medium that stores a program for a computer to perform an operation with a search support device in which a search process for an address indicating the location of desired information on a desired network is requested based on search information associated with the desired information. The program stored in the recording medium includes: a procedure for storing a category menu in which predetermined categories are listed up; and a procedure for generating search information associated with a category selected from the category menu.

The above recording medium of the present invention may store a program that further includes a procedure for generating the category menu.

Various types of recording media can be employed as the recording medium of the present invention. Examples of such recording media include magnetic recording media that magnetically record information, such as a CD-ROM, a floppy disk, and a magneto-optical (MO) disk, and semiconductor memories that electrically record information, such as a ROM and a flash memory.

25

BRIEF DESCRIPTION OF THE DRAWINGS

The features and advantages of the present invention will become more apparent from the following detailed description, with reference to the accompanying drawings.

FIG. 1 is a flowchart of a series of processes for searching for a homepage and registering a bookmark;

FIG. 2 shows examples of browser screens displayed on a display unit;

FIG. 3 shows examples of browser screens displayed on a display unit;

FIG. 4 shows the structure of the hardware of a computer that embodies a search support device in accordance with the present invention;

5 FIG. 5 is a flowchart of a first embodiment of procedures of a computer that embody a registration process performed by the search support device in accordance with the present invention;

FIG. 6 shows the structure of an example definition entry;

10 FIG. 7 shows the structure of an example menu;

FIG. 8 shows browser screens displayed on a display unit;

15 FIG. 9 illustrates a method for generating a command to be actually inputted into the search engine from a search character string;

20 FIG. 10 is a flowchart of procedures performed by a computer that embody a selection process performed by the search support device in accordance with the present invention;

FIG. 11 shows browser screens displayed on the display unit;

25 FIG. 12 is a flowchart of procedures performed by a computer that embody a delete process performed by the search support device in accordance with the present invention;

30 FIG. 13 is a flowchart of a second embodiment of procedures performed by a computer that embody a registration process performed by the search support device in accordance with the present invention;

FIG. 14 shows browser screens displayed on the display unit;

35 FIG. 15 illustrates the production of a definition entry and a control table from a selection record;

FIG. 16 is a flowchart of the production

of the definition entry and the control table from a selection record; and

FIG. 17 is a flowchart of a third embodiment of procedures performed by a computer 5 that embody a registration process performed by the search support device in accordance with the present invention.

PREFERRED EMBODIMENTS FOR CARRYING OUT THE INVENTION

10 The following is a description of embodiments of the present invention, with reference to the accompanying drawings.

15 FIG. 4 shows the structure of the hardware of a computer that embodies a search support device in accordance with the present invention.

20 In FIG. 4, a computer 1 comprises an input unit 2, a display unit 3, a drive unit 4, a recording medium 5, an auxiliary recording unit 6, a memory unit 7, an arithmetic operation unit 8, a communication buffer unit 9, and a communication process unit 10, all of which are connected to each other via a bus B.

25 The input unit 2 is constituted by a keyboard and a mouse handled by a user of the computer 1, and used to input operation signals into the computer 1. The display unit 3 displays various windows and data for operating the computer 1.

30 The communication buffer unit 9 temporarily stores data files for exchanging data with an external network via the communication process unit 10. The communication process unit 10 exchanges data with an external network through a communication means such as a telephone line, and transmits the data file from the communication 35 buffer unit 9. The communication process unit 10 receives and stores data files into the communication buffer unit 9.

102540-200711800

A program for the search support device is supplied by the recording medium 5 such as a CD-ROM. The recording medium 5 storing the program for the search support device is set to the drive unit 4, 5 and the program is installed from the recording medium 5 into the auxiliary recording unit 6 via the drive unit 4.

The auxiliary recording unit 6 stores necessary files and data, as well as the installed 10 program for the search support device. The memory unit 7 reads out and stores the program for the search support device from the auxiliary recording unit 6. When the computer 1 is activated or the search support device is used. The arithmetic 15 operation unit 8 performs an operation for the search support device, in accordance with the program for the search support device stored in the memory unit 7.

In accordance with the program for the 20 search support device, the memory unit 7 reads out the program for the search support device installed in the auxiliary recording unit 6, and the arithmetic operation unit 8 carries out the procedures described later.

FIG. 5 is a flowchart of a first 25 embodiment of the procedures performed by the computer that embody the registration operation performed by the search support device in accordance with the present invention. The registration 30 operation performed by the search support device is a process for registering homepages which the user likes in a menu in which information is classified into categories.

In FIG. 5, a command is inputted through 35 the input unit 2 to activate the browser for accessing a homepage in step S20. The search support device of the present invention may be

automatically started with the activation of the browser, or the user may input an activating command through the input unit 2.

As the browser and the search support device are activated, the arithmetic operation unit 8 reads out a definition entry 18 from the auxiliary recording unit 6 and writes the definition entry 18 in the memory unit 17. Based on the definition entry 18, the menu to be displayed on the display unit 3 is produced in step S21.

Referring now to FIGS. 6 and 7, the definition entry and the menu will be described. FIG. 6 shows the structure of an example of the definition entry, and FIG. 7 shows the structure of an example of the menu. The definition entry include top menu definition entry, sub menu items, additional menu items, registered definition entry, and search definition entry, as shown in FIG. 6. The definition entry define necessary information for producing a menu represented by a hierarchical structure having registered items classified into categories, as shown in FIG. 7.

For instance, the top menu definition entry includes a menu display item (title) 20, the presence or absence of a sub menu/the menu number of the sub menu 21, the presence or absence of a registered item/the menu number of the registered item 22, an additional selection flag/an additional menu cord 23, and a search keyword character string and search conditions 24.

The menu display item 20 defines a greater title to be displayed on the menu shown in FIG. 7. For instance, the menu display item 20 defines the names of greater items, such as "living" and "entertainment and hobby" shown in FIG. 7. The presence or absence of a sub menu/the menu number of the sub menu 21 defines whether or not a sub menu

definition entry exists on the level under each greater item. The presence or absence of a registered item/the menu number of the registered item 22 defines whether or not a registered item 5 exits on the level under each corresponding greater item. The additional selection flag/additional menu code 23 defines whether or not an additional menu definition entry is defined on the level under each corresponding greater item. The search keyword 10 character string and search conditions 24 define a search keyword character string used when the greater item is selected.

The sub menu definition entry is substantially the same as the top menu definition 15 entry, and the explanations for those are omitted. Among the sub menu definition entry, a display item 25 defines the names of middle items such as "read newspaper article" and "see weather forecast" in the menu shown in FIG. 7.

20 The additional menu definition entry includes a menu display item 26 and a search keyword character string and search conditions 27. The menu display item 26 of the additional menu definition entry defines an additional menu definition entry 25 under a greater item defined by the top menu definition entry and a medium item defined by the sub menu definition entry.

For instance, an additional menu is used 30 for further classifying the greater item and medium item, and defines smaller items such as "Kanto region" and "Chubu region" on the level under the "see weather forecast" in the menu shown in FIG. 7.

Next, a definition entry of a registered item is defined when the information of a homepage 35 searched for by a search engine through a process. The definition entry of the registered item defines a page title 28, a URL address 29, and an

introduction 30 for the page.

The search definition entry defines the layout definition informant of a menu screen of a search result 30-1, search result data layout 5 definition information 30-2, and search engine start command format definition information 30-3.

An example of the menu produced based on the definition entry 18 described above is shown in FIG. 7. This menu shown in FIG. 7 may take various 10 forms that are easy to use.

Referring back to FIG. 5, which is the flowchart of the first embodiment of the procedures performed by the computer that embodies the registration operation performed by the search 15 support device, the memory unit 7 produces a control table in step (S21). The display unit 3 displays the control table as a menu shown in FIG. 8A in step S22.

The arithmetic operation unit 8 determines 20 whether or not a command for designating an item constituting the menu has been inputted through the input unit 2 in step S23. If it is determined that a command for designating an item constituting the menu ("YES" in step S23), the search character 25 string and the search conditions of the designated item are read out from the definition entry 18, and recorded as a search character string in the memory unit 7 in step S24. The menu display items 20 and 25 designated in step (S23) are recorded as selected 30 items in the memory unit 7 in step S25.

Next, it is determined that whether or not a sub menu is defined under the selected item in step S44. If a sub menu is defined the operation moves on to step S22, and the sub menu shown in FIG. 35 8B is displayed.

If there is no sub menu definition, the arithmetic operation unit 8 determines whether or

Translation - Section 4860

not the additional selection flag 23 of the item designated in step S23 is defined as "ON" in step S26. If the additional selection flag 23 of the item designated in step S23 is defined as "ON" 5 ("YES" in step S26), the arithmetic operation unit 8 displays an additional menu shown in FIG. 8C on the display unit 3 in step S27.

The arithmetic operation unit 8 then determines whether or not a command for designating 10 an item that constitutes the additional menu has been inputted in step S28. If it is determined that the command for designating an item that constitutes the additional menu ("YES" in step S28), the search character string and the search conditions 27 of the 15 designated item are read out from the definition entry 18, and recorded as a search character string in the memory unit 7 in step S29. Also, the menu display item 26 designated in step S28 is recorded as a selected item in the memory unit 7 in step S30.

20 Next, the search character strings stored in the memory unit 7 in steps S24 and S29 are jointed to generate a search character string to be inputted in the search engine in step S31.

Referring now to FIG. 9, a method of generating a 25 command to be inputted in the search engine from a search character string will be described.

A search character string 32 recorded in the memory unit 7 in step S24 and the selected item recorded in the memory unit 7 in step S25 are 30 recorded as a search character string A. A search character string 33 recorded in the memory unit 7 in step S29 and the selected item recorded in the memory unit 7 in step S30 are recorded as a search character string B.

35 In the example shown in FIG. 9, the selected item "see weather forecast" as the title of the search character string A and the search

character string 32 "weather forecast (and)" are recorded in the memory unit 7. At this point, the search character strings are accompanied by the search conditions. In the case of the search 5 character string A, the search condition is "and". Likewise, a selected item "Kanto" and a search character string 33 "Kanto|Kanto region" are recorded as the title of the search character string B in the memory unit 7.

10 The search character string 32 "weather forecast (and)" and the search character string 33 "Kanto|Kanto region" are constructed as one search character string 34 "weather forecast & Kanto|Kanto region", and recorded in the memory unit 7. After 15 that, a search engine start command format definer 35 "http://search.or.jp>Title? = @DATA" is read out. The search string 34 is substituted in "@DATA", so that an actual transmission command 36 20 "http://search.or.jp>Title? = weather forecast & Kanto|Kanto region" is constructed.

Next, the transmission command constructed in step S31 is transmitted to the browser. By doing so, the search character 34 is inputted in the search engine via the communication buffer unit 9 25 and the communication process unit 10, and the search process is carried out by the search engine in step S32. In other words, the telephone line usage starts at this point.

A result of the search process by the 30 search engine is supplied to the memory unit 7 via the combination buffer unit 9 and the communication process unit 10, and analyzed and divided into various data by a search result data layout 31-2. In accordance with these data and a layout 35 definition information 31-1 of a menu screen of the search result, a search result menu is displayed on the display unit 3 as shown in FIG. 8D in step S33.

The arithmetic operation unit 8 determines whether or not a command that designates an item constituting the search result menu has been inputted through the input unit 2 in step S34. If 5 it is determined that the command that designates an item constituting the search result menu ("YES" in step S34), the information on the designated item, such as its name and contents, is recorded as the selected item in the memory unit 7 in step S35.

10 The arithmetic operation unit 8 then transmits the URL address of the homepage of the item designated in step S34 to the browser, so that the contents of the homepage can be displayed on the display unit 3, as shown in FIG. 8E, via the 15 communication buffer unit 9 and the communication process unit 10 in step S36. Next, the URL address of the homepage displayed on the display unit 3 is recorded in the memory unit 7 in step S37.

With the homepage being displayed on the 20 display unit 3, it is determined whether or not a bookmark registration command contained in the bookmark registration command has been inputted through the input unit 2 in step S38. If it is determined that the bookmark 25 registration command has been inputted ("YES" in step S38), it is determined whether or not the recorded URL address is found in the memory unit 7 in step S39.

If it is determined that the recorded URL address is found in the memory unit 7 ("YES" in step 30 S39), the arithmetic operation unit 8 determines in step S40 whether or not a "steady relationship" is maintained between the URL address recorded in the memory unit 7 in step S37 and the URL address of the homepage displayed on the display unit 3 when the 35 bookmark registration command is inputted in step S38.

The "steady relationship" means a

4329147050

situation in which the URL address of the homepage displayed on the display unit 3 when the bookmark registration command is inputted in step S38 is identical to or lower than the URL address recorded
5 in the memory unit 7 in step S37.

If it is determined that the "steady relationship" is maintained between the two URL addresses ("YES" in step S40), the storage location of the information of the homepage displayed on the
10 display unit 3 at the time of the input of the bookmark registration command into the definition entry and the control table is determined in step S41, in accordance with the control table 18 and the selected items recorded in the memory unit 7 in
15 steps S25 and S30.

Referring to FIGS. 8A to 8E, for instance, the memory unit 7 stores the medium item "see weather forecast shown in FIG. 8B and the small item "Kanto" shown in FIG. 8C as the selected items
20 recorded in steps S25 and S30. The item "Weather Forecast in the Kanto Region" shown in FIG. 8D is searched for with the search character string "weather forecast & Kanto|Kanto region" associated with the medium item "see weather forecast" and the
25 small item "Kanto". Accordingly, the newly detected item "Weather Forecast in the Kanto Region" can be considered to be a category steadily associated with the medium item "see weather forecast" and the small item "Kanto", and the storage location is determined
30 to be a level under the medium item "see weather forecast" and the small item "Kanto".

To register the newly detected item at the location determined in step S41, the arithmetic operation unit 8 sets the name of the homepage in
35 the page title 28, the contents of the homepage in the introduction 30, and the URL address of the homepage at the time of the input of the

registration command in the URL address 29. The arithmetic operation unit 8 then generates a definition entry for the registered item, and performs an information adding storage process for 5 the definition entry and the control table in step S42. Here, the processed definition entry and control table are recorded in the auxiliary recording unit 6 if necessary. The information adding storage process is performed to store the 10 page title 28, the URL address 29, and the introduction 30.

If no item is designated in steps S23 and S34 and no bookmark registration command is inputted in step S38, the operation may be suspended until an 15 item is designated, or if no item is designated over a predetermined period of time, the operation can be terminated. If the additional selection flag is not defined as "ON" in step S26 and no item is designated in step S28, the construction of a search 20 character string is continued in step S31. Also, if no URL address is recorded in step S39 and no steady relationship is maintained with any URL address in step S40, the bookmark registration operation as a conventional function of the browser is performed in 25 step S43, and the process of step S38 is continued.

FIG. 10 is a flowchart of one embodiment of procedures performed by a computer that embodies the selection process performed by the search support device in accordance with the present 30 invention. The selection process performed by the search support device is to select an item that is registered in accordance with the flowchart shown in FIG. 5 from a menu in which information is classified into categories.

35 In FIG. 10, a command for activating the browser for accessing a homepage is inputted through the input unit 2 in step S50. The search support

10227486017350

device of the present invention may be automatically started by activating the browser, or a user may input a command for starting the search support device through the input unit 2.

5 As the browser and the search support device are activated, the arithmetic operation unit 8 reads out the control table from the auxiliary recording unit 6 or the memory unit 7, and displays a menu shown in FIG. 11A on the display unit 3 in
10 step S51. If no display unit is provided in the auxiliary recording unit 6 and the memory unit 7, the definition entry is read out from the auxiliary recording unit 6, and a control table is produced based on the definition entry.

15 The arithmetic operation unit 8 determines whether or not a command for designating an item constituting a menu shown in FIG. 11A has been inputted through the input unit 2 in step S52. If it is determined that the command for designating an
20 item constituting the menu has been inputted ("YES" in step S52), the designated item is recorded as a selection item in the memory unit 7 in step S53. Next, it is determined whether or not a sub menu is defined under the selection item in step S58. If a
25 sub menu is defined, the operation moves on to step S51 so as to display a sub menu shown in FIG. 11B.

If no sub menu is defined, the arithmetic operation unit 8 determines, in step S54, whether or not a registered item is contained in the item
30 designated in step S52. If there is a registered item in the designated item, the arithmetic operation unit 8 displays a registration menu shown in FIG. 11C on the display unit 3. As shown in FIG. 11B, an item that has a registered item is marked
35 with a larger dot, while items that do not have a registered item are marked with smaller dots, so that whether a registered item exists on a level

under each item can be easily determined.

The arithmetic operation unit 8 then determines whether or not a command for designating a registered item has been inputted through the 5 input unit 2 in step S56. If the command for designating a registered item has been inputted ("YES" in step S56), the arithmetic operation unit 8 reads out the information (the URL address 29) as to the homepage of the selected registered item from 10 the control table, and supplies the information to the browser. The arithmetic operation unit 8 then displays the homepage of the supplied URL address on the display unit 3 by the browser in step S57.

In the previous process, if no item or 15 registered item is designated in step S52, the operation may be suspended until an item is designated. If no item is designated over a certain period of time, the operation may be stopped. If there is no registered item in step S54 and a 20 registered item is again searched for, the control operation moves on to step S26 of FIG. 5, and the search process is continued.

FIG. 12 is a flowchart of procedures performed by the computer that embody a delete 25 process performed by the search support device in accordance with the present invention. The delete process performed by the search support device is a process to delete an item that has been registered in accordance with the flowchart of FIG. 5 from the 30 menu in which information is classified into categories.

The flowchart shown in FIG. 12 is substantially the same as the flowchart shown in FIG. 10, except for one part. Accordingly, the same 35 procedures as in the flowchart of FIG. 10 are denoted by the same reference numerals, and explanations for those are omitted. In FIG. 12, a

5
40278974865

registration menu is displayed on the display unit 3 through steps S50 to S55 and S58.

The arithmetic operation unit 8 determines whether or not a command for designating an item to be deleted has been inputted through the input unit 2 in step S60. If the command for designating an item to be deleted has been inputted ("YES" in step S60), the arithmetic operation unit 8 deletes the information of the homepage of the selection item from the control table and the definition entry in step S61. If necessary, the control table and the definition entry updated in step S61 are stored in the auxiliary recording unit 6. In the previous process, if no item to be deleted is designated in step S60, the operation may be suspended until an item is designated. If no item is designated over a certain period of time, the operation may be stopped.

FIG. 13 is a flowchart of a second embodiment of the procedures performed by the computer that embodies a registration process performed by the search support device in accordance with the present invention. The flowchart of the second embodiment shown in FIG. 13 is characterized in that a search result of the search engine is processed, and that the page of the search result of the search engine is displayed without displaying its own menu of search results. The flowchart of FIG. 13 is substantially the same as the flowchart of FIG. 5, except for one part. In FIG. 13, the same procedures as in the flowchart of FIG. 5 are denoted by the same reference numerals, and explanations for them are omitted.

In FIG. 13, the browser and the search support device are activated in step S20. As the browser and the search support device are activated, the arithmetic operation unit 8 communicates with the server via the communication buffer unit 9 and

2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2240
2241
2242
2243
2244
2245
2246
2247
2248
2249
2250
2251
2252
2253
2254
2255
2256
2257
2258
2259
2260
2261
2262
2263
2264
2265
2266
2267
2268
2269
2270
2271
2272
2273
2274
2275
2276
2277
2278
2279
2280
2281
2282
2283
2284
2285
2286
2287
2288
2289
2290
2291
2292
2293
2294
2295
2296
2297
2298
2299
2300
2301
2302
2303
2304
2305
2306
2307
2308
2309
2310
2311
2312
2313
2314
2315
2316
2317
2318
2319
2320
2321
2322
2323
2324
2325
2326
2327
2328
2329
2330
2331
2332
2333
2334
2335
2336
2337
2338
2339
2340
2341
2342
2343
2344
2345
2346
2347
2348
2349
2350
2351
2352
2353
2354
2355
2356
2357
2358
2359
2360
2361
2362
2363
2364
2365
2366
2367
2368
2369
2370
2371
2372
2373
2374
2375
2376
2377
2378
2379
2380
2381
2382
2383
2384
2385
2386
2387
2388
2389
2390
2391
2392
2393
2394
2395
2396
2397
2398
2399
2400
2401
2402
2403
2404
2405
2406
2407
2408
2409
2410
2411
2412
2413
2414
2415
2416
2417
2418
2419
2420
2421
2422
2423
2424
2425
2426
2427
2428
2429
2430
2431
2432
2433
2434
2435
2436
2437
2438
2439
2440
2441
2442
2443
2444
2445
2446
2447
2448
2449
2450
2451
2452
2453
2454
2455
2456
2457
2458
2459
2460
2461
2462
2463
2464
2465
2466
2467
2468
2469
2470
2471
2472
2473
2474
2475
2476
2477
2478
2479
2480
2481
2482
2483
2484
2485
2486
2487
2488
2489
2490
2491
2492
2493
2494
2495
2496
2497
2498
2499
2500
2501
2502
2503
2504
2505
2506
2507
2508
2509
2510
2511
2512
2513
2514
2515
2516
2517
2518
2519
2520
2521
2522
2523
2524
2525
2526
2527
2528
2529
2530
2531
2532
2533
2534
2535
2536
2537
2538
2539
2540
2541
2542
2543
2544
2545
2546
2547
2548
2549
2550
2551
2552
2553
2554
2555
2556
2557
2558
2559
2560
2561
2562
2563
2564
2565
2566
2567
2568
2569
2570
2571
2572
2573
2574
2575
2576
2577
2578
2579
2580
2581
2582
2583
2584
2585
2586
2587
2588
2589
2590
2591
2592
2593
2594
2595
2596
2597
2598
2599
2600
2601
2602
2603
2604
2605
2606
2607
2608
2609
2610
2611
2612
2613
2614
2615
2616
2617
2618
2619
2620
2621
2622
2623
2624
2625
2626
2627
2628
2629
2630
2631
2632
2633
2634
2635
2636
2637
2638
2639
2640
2641
2642
2643
2644
2645
2646
2647
2648
2649
2650
2651
2652
2653
2654
2655
2656
2657
2658
2659
2660
2661
2662
2663
2664
2665
2666
2667
2668
2669
2670
2671
2672
2673
2674
2675
2676
2677
2678
2679
2680
2681
2682
2683
2684
2685
2686
2687
2688
2689
2690
2691
2692
2693
2694
2695
2696
2697
2698
2699
2700
2701
2702
2703
2704
2705
2706
2707
2708
2709
2710
2711
2712
2713
2714
2715
2716
2717
2718
2719
2720
2721
2722
2723
2724
2725
2726
2727
2728
2729
2730
2731
2732
2733
2734
2735
2736
2737
2738
2739
2740
2741
2742
2743
2744
2745
2746
2747
2748
2749
2750
2751
2752
2753
2754
2755
2756
2757
2758
2759
2760
2761
2762
2763
2764
2765
2766
2767
2768
2769
2770
2771
2772
2773
2774
2775
2776
2777
2778
2779
2780
2781
2782
2783
2784
2785
2786
2787
2788
2789
2790
2791
2792
2793
2794
2795
2796
2797
2798
2799
2800
2801
2802
2803
2804
2805
2806
2807
2808
2809
2810
2811
2812
2813
2814
2815
2816
2817
2818
2819
2820
2821
2822
2823
2824
2825
2826
2827
2828
2829
2830
2831
2832
2833
2834
2835
2836
2837
2838
2839
2840
2841
2842
2843
2844
2845
2846
2847
2848
2849
2850
2851
2852
2853
2854
2855
2856
2857
2858
2859
2860
2861
2862
2863
2864
2865
2866
2867
2868
2869
2870
2871
2872
2873
2874
2875
2876
2877
2878
2879
2880
2881
2882
2883
2884
2885
2886
2887
2888
2889
2890
2891
2892
2893
2894
2895
2896
2897
2898
2899
2900
2901
2902
2903
2904
2905
2906
2907
2908
2909
2910
2911
2912
2913
2914
2915
2916
2917
2918
2919
2920
2921
2922
2923
2924
2925
2926
2927
2928
2929
2930
2931
2932
2933
2934
2935
2936
2937
2938
2939
2940
2941
2942
2943
2944
2945
2946
2947
2948
2949
2950
2951
2952
2953
2954
2955
2956
2957
2958
2959
2960
2961
2962
2963
2964
2965
2966
2967
2968
2969
2970
2971
2972
2973
2974
2975
2976
2977
2978
2979
2980
2981
2982
2983
2984
2985
2986
2987
2988
2989
2990
2991
2992
2993
2994
2995
2996
2997
2998
2999
2999
3000
3001
3002
3003
3004
3005
3006
3007
3008
3009
30010
30011
30012
30013
30014
30015
30016
30017
30018
30019
30020
30021
30022
30023
30024
30025
30026
30027
30028
30029
30030
30031
30032
30033
30034
30035
30036
30037
30038
30039
30040
30041
30042
30043
30044
30045
30046
30047
30048
30049
30050
30051
30052
30053
30054
30055
30056
30057
30058
30059
30060
30061
30062
30063
30064
30065
30066
30067
30068
30069
30070
30071
30072
30073
30074
30075
30076
30077
30078
30079
30080
30081
30082
30083
30084
30085
30086
30087
30088
30089
30090
30091
30092
30093
30094
30095
30096
30097
30098
30099
30099
30100
30101
30102
30103
30104
30105
30106
30107
30108
30109
30110
30111
30112
30113
30114
30115
30116
30117
30118
30119
30120
30121
30122
30123
30124
30125
30126
30127
30128
30129
30129
30130
30131
30132
30133
30134
30135
30136
30137
30138
30139
30140
30141
30142
30143
30144
30145
30146
30147
30148
30149
30150
30151
30152
30153
30154
30155
30156
30157
30158
30159
30160
30161
30162
30163
30164
30165
30166
30167
30168
30169
30170
30171
30172
30173
30174
30175
30176
30177
30178
30179
30180
30181
30182
30183
30184
30185
30186
30187
30188
30189
30190
30191
30192
30193
30194
30195
30196
30197
30198
30199
30199
30200
30201
30202
30203
30204
30205
30206
30207
30208
30209
30210
30211
30212
30213
30214
30215
30216
30217
30218
30219
30220
30221
30222
30223
30224
30225
30226
30227
30228
30229
30229
30230
30231
30232
30233
30234
30235
30236
30237
30238
30239
30240
30241
30242
30243
30244
30245
30246
30247
30248
30249
30250
30251
30252
30253
30254
30255
30256
30257
30258
30259
30260
30261
30262
30263
30264
30265
30266
30267
30268
30269
30270
30271
30272
30273
30274
30275
30276
30277
30278
30279
30280
30281
30282
30283
30284
30285
30286
30287
30288
30289
30290
30291
30292
30293
30294
30295
30296
30297
30298
30299
30299
30300
30301
30302
30303
30304
30305
30306
30307
30308
30309
30310
30311
30312
30313
30314
30315
30316
30317
30318
30319
30320
30321
30322
30323
30324
30325
30326
30327
30328
30329
30329
30330
30331
30332
30333
30334
30335
30336
30337
30338
30339
30340
30341
30342
30343
30344
30345
30346
30347
30348
30349
30350
30351
30352
30353
30354
30355
30356
30357
30358
30359
30360
30361
30362
30363
30364
30365
30366
30367
30368
30369
30370
30371
30372
30373
30374
30375
30376
30377
30378
30379
30380
30381
30382
30383
30384
30385
30386
30387
30388
30389
30390
30391
30392
30393
30394
30395
30396
30397
30398
30399
30399
30400
30401
30402
30403
30404
30405
30406
30407
30408
30409
30410
30411
30412
30413
30414
30415
30416
30417
30418
30419
30420
30421
30422
30423
30424
30425
30426
30427
30428
30429
30429
30430
30431
30432
30433
30434
30435
30436
30437
30438
30439
30440
30441
30442
30443
30444
30445
30446
30447
30448
30449
30450
30451
30452
30453
30454
30455
30456
30457
30458
30459
30460
30461
30462
30463
30464
30465
30466
30467
30468
30469
30470
30471
30472
30473
30474
30475
30476
30477
30478
30479
30480
30481
30482
30483
30484
30485
30486
30487
30488
30489
30490
30491
30492
30493
30494
30495
30496
30497
30498
30499
30499
30500
30501
30502
30503
30504
30505
30506
30507
30508
30509
30510
30511
30512
30513
30514
30515
30516
30517
30518
30519
30520
30521
30522
30523
30524
30525
30526
30527
30528
30529
30529
30530
30531
30532
30533
30534
30535
30536
30537
30538
30539
30540
30541
30542
30543
30544
30545
30546
30547
30548
30549
30550
30551
30552
30553
30554
30555
30556
30557
30558
30559
30560
30561
30562
30563
30564
30565
30566
30567
30568
30569
30570
30571
30572
30573
30574
30575
30576
30577
30578
30579
30580
30581
30582
30583
30584
30585
30586
30587
30588
30589
30590
30591
30592
30593
30594
30595
30596
30597
30598
30599
30599
30600
30601
30602
30603
30604
30605
30606
30607
30608
30609
30610
30611
30612
30613
30614
30615
30616
30617
30618
30619
30620
30621
30622
30623
30624
30625
30626
30627
30628
30629
30629
30630
30631
30632
30633
30634
30635
30636
30637
30638
30639
30640
30641
30642
30643
30644
30645
30646
30647
30648
30649
30650
30651
30652
30653
30654
30655
30656
30657
30658
30659
30660
30661
30662
30663
30664
30665
30666
30667
30668
30669
30670
30671
30672
30673
30674
30675
30676
30677
30678
30679
30680
30681
30682
30683
30684
30685
30686
30687
30688
30689
30690
30691
30692
30693
30694
30695
30696
30

the communication process unit 10, and writes a definition entry supplied from the server into the memory unit 7. Based on the definition entry, the arithmetic operation unit 8 produces a control table, 5 and stores the control table in the auxiliary recording unit 6, if necessary, in step S70.

The browser is continued being operated, and menus shown in FIGS. 14A and 14B are displayed in step S71. The menus shown in FIGS. 14A and 14B 10 are category menus especially for search on the server produced in the HTML format, but not a page that belongs to the search engine.

The arithmetic operation unit 8 records a selection record selected by a user handling the 15 category menu shown in FIG. 14A in the memory unit 7 in step S72. If there is a sub menu, the operation returns to step S71, and the menu shown in FIG. 14B is displayed. If there is no sub menu page and the additional selection flag is set to "ON", the 20 additional menu is displayed on the display unit 3 through steps S26 and S27. When a command for designating an item constituting the additional menu is inputted, the search character string of the item selected in step S28 is jointed to the transmission 25 command for the search engine recorded in the memory unit 7 in step S73.

The selection record on the additional menu is recorded in the memory unit 7 in step S74. Using the transmission command constructed in step 30 S73, the search process is carried out by the search engine in step S75. A search result by the search engine is displayed on the display unit 3, as shown in FIG. 14D in step S76.

The arithmetic operation unit 8 determines 35 whether or not a command for designating an item constituting the search result has been inputted through the input unit 2 in step S77. If the

command for designating an item constituting the menu of the search result has been inputted ("YES" in step S77), the homepage of the item designated in step S77 is displayed on the display unit 3, as
5 shown in FIG. 14E in step S36.

In steps S37 to S40, if it is determined that a certain relationship is maintained between the URL address recorded in the memory unit 7 in step S37 and the URL address of the homepage
10 displayed on the display unit 3 at the time of the input of the bookmark registration command in step S38, a location for storing the information of the homepage displayed on the display unit 3 at the time of the input of the bookmark registration command
15 into the control table is determined, in step S78, from the control table and the selection record recorded in the memory unit 7 in steps S72 and S74.

The arithmetic operation unit 8 then performs an information adding storage process for
20 the definition entry and the control table, in step S79, thereby registering a newly detected item in the location determined in step S78. At this point, the definition entry and the control table subjected to the information adding storage process are
25 recorded in the auxiliary recording unit 6, if necessary.

In the flowchart of the second embodiment shown in FIG. 13, the definition entry read and the control table production (step S70) may be performed
30 immediately before the additional storage location determination (step S78) and the information adding storage process (step S79).

In the following, the procedures for producing a definition entry and a control table
35 from a selection record will be described. FIG. 15 illustrates the production of a definition entry and a control table from a selection record. FIG. 16 is

2025PT003850

a flowchart of the production of the definition entry and the control table from the selection record.

The selection record contains the level number of an item selected by a user from the category menu shown in FIG. 14B, and the selection item. For instance, the example shown in FIG. 15A contains a selection item "living" at the level number 1, a selection item "news" at the level number 2, a selection item "politics" at the level number 3. In accordance with the selection record, the definition entry and the control table are produced, and the URL address of the homepage detected from the search character string associated with the three selection items is registered in a group a level below the selection item "politics" of the level number 3.

In an example shown in FIG. 15B, an addition process is performed for the definition entry and the control table that have been produced in advance. With selection items "living", "weather forecast", and "Kanto region" being recorded as a selection record at the level numbers 1, 2, and 3, respectively, no item is newly produced for the level number 1, because the selection item "living" has already been produced at the level number 1 in the definition entry and the control table.

Since the selection item "weather forecast" at the level number 2 is not identical to the selection item "news" produced at the level number 2 in the definition entry and the control table, the selection item "weather forecast" is newly produced at the level number 2, which is one level below the selection item "living" at the level number 1. Likewise, since the selection item "Kanto region" at the level number 3 is not identical to the selection item "politics" produced at the level

number 3 in the definition entry and the control table, the selection item "Kanto region" is newly produced at the level number 3, which is one level below the selection item "weather forecast".

5 The procedures of producing the definition entry and the control table as shown in FIG. 15 can be embodied by the flowchart shown in FIG. 16.

10 In FIG. 16, if any data is recorded in a memo region to be used in the process of producing the definition entry and the control table from the selection record prepared in the memory unit 7, the arithmetic operation unit 8 erases the data and clears the memo region to a non-data recorded state (hereinafter referred to as "cleared state") in step
15 S80.

The arithmetic operation unit 8 determines whether or not selection records are recorded in the memory unit 7 in step S81. If selection records are recorded in the memory unit 7 ("YES" in step S81),
20 the arithmetic operation unit 8 reads out one of the selection records in step S82.

25 The location of the level of the selection record read out in step S82 is checked from the level number, and it is determined whether or not the definition entry and the control table has a selection item at the location of the selection record in step S83. If the definition entry and the control table have a selection item at the location of the selection record ("YES" in step S83), the
30 arithmetic operation unit 8 determines in step S85 whether or not the name of the selection item of the selection record is identical to the name of the selection item in the definition entry and the control table. On the other hand, if the definition entry and the control table have a selection item at the location of the selection record ("NO" in step S83), a new level is formed at the location of the
35

selection record in the definition entry and the control table in step S84.

If the name of the selection item of the selection record is identical to the name of the
5 selection item in the definition entry and the control table ("YES" in step S85), the location of the selection item of the selection record is recorded in the memo region in step S87. On the other hand, if the name of the selection item of the
10 selection record is not identical to the name of the selection item in the definition entry and the control table ("NO" in step S85), the selection item is produced in the definition entry and the control table, and recorded in the memory unit 7 in step S86.

15 After the selection item is produced in the definition entry and the control table, the arithmetic operation unit 8 also records the location of the produced selection item in the memo region in step S87. The read start position of the
20 selection record is moved to the next position in step S88, the procedures of step S81 to S88 are repeated.

If it is determined in step S81 that no selection records to be read next are recorded, it
25 is then determined whether or not the memo region is in the cleared state in step S89.

If it is determined that the memo region is not in the cleared state ("YES" in step S89), the URL address of a desired homepage is registered on a
30 level below the location of the selection item recorded in the memo region in step S90. If it is determined that the memo region is in the cleared state ("YES" in step S89), the operation is ended.

Referring now to FIG. 17, an example of
35 procedures for producing the definition entry and the control table from the selection record described with reference to FIGS. 15 and 16 will be

described. FIG. 17 is a flowchart of a third embodiment of procedures performed by a computer that embody a registration process performed by the search support device in accordance with the present invention. The flowchart of FIG. 17 is substantially the same as the flowchart of FIG. 13, except for one part. Accordingly, in the flowchart of FIG. 17, the same procedures as in the flowchart of FIG. 13 are denoted by the same reference numerals, and explanations for them are omitted.

In FIG. 17, the browser and the search support device are activated in step S20. In steps S71 and S72, a selection record selected in terms of categories by a user handling the browser is recorded in the memory unit 7. The user then performs a search process by the search engine, and displays a search result by the search engine on the display unit in steps S75 and S76.

The arithmetic operation unit 8 determines whether or not a command for designating an item constituting the search result has been inputted through the input unit 2 in step S77. If the command for designating an item constituting the menu of the search result has been inputted ("YES" in step S77), the homepage of the item designated in step S77 is displayed on the display unit 3 as shown in FIG. 14E in step S36.

In steps S37 to S40, if a certain relationship is maintained between the URL address recorded in the memory unit 7 in step S37 and the URL address of the homepage displayed on the display unit 3 at the time of the input of the bookmark registration command ("YES" in step S40), it is then determined whether or not the definition entry and the control table are recorded in the memory unit 7 in step S90.

If it is determined that the definition

entry and the control table are not recorded in the memory unit 7 ("YES" in step S90), the arithmetic operation unit 8 produces the definition entry and the control table by the method described with reference to FIGS. 15 and 16 in step S91. If it is determined that the definition entry and the control table are recorded in the memory unit 7 ("NO" in step S90), the definition entry and the control table are not produced.

10 In accordance with the flowchart of FIG. 16, using the definition entry, the control table, and the selection record, the arithmetic operation unit 8 then determines, in step S92, the location for storing the information of the homepage
15 displayed on the display unit 3 at the time of the input of the definition entry and the control table bookmark registration command.

The arithmetic operation unit 8 then performs an information adding storage process for
20 the definition entry and the control table in step S93 so as to register the newly detected item at the location determined in step S92. Here, the definition entry and the control table subjected to the information adding storage process are recorded
25 in the auxiliary recording unit 6, if necessary.

In the above embodiments, the auxiliary recording unit 6 shown in FIG. 4 is equivalent to the storage unit.

It should be understood that the present
30 invention is not limited to the above embodiments, but various modifications and changes may be made without departing from the scope of the present invention.

[FIG. 1]

START

S10 activate a search engine
S11 input a search keyword
S12 perform a search process
S13 further limitation necessary?
S14 input again a search keyword
S15 bookmark registration necessary?
S16 carry out the bookmark registration
S17 access the homepage

END

[FIG. 2A]

search engine page
advertisement
search keyword
return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 2B]

search engine page
advertisement
search keyword
weather forecast
national weather forecast
get timely information. National weather forecast
return
advance
home
re-read
stop
connect

bookmark

open

save

[FIG. 2C]

search engine page

advertisement

search keyword

Kanto region

weather forecast for Kanto region

get weather information by a simple process

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 2D]

Page of "Weather Forecast for Kanto Region"

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 3A]

bookmark

car mania

bicycle club

animated films 1998

manga kingdom

weather forecast for Kanto region

[FIG. 3B]

page of "Weather forecast for Kanto region"
return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 4]

2 input unit
3 display unit
4 drive unit
5 recording medium
6 auxiliary recording unit
7 memory unit
8 arithmetic operation unit
9 communication buffer unit
10 communication process unit
回線 line

[FIG. 5]

START
S20 activate browser
S21 read a definition entry and produce a control table
S22 display the menu
S23 item designated?
S24 copy a search character string
S25 record the selected item
S26 additional selection flag ON?
S27 display the additional menu
S28 item designated?
S29 copy a search character string

S30 record the selected item
S31 construct a search character string
S32 perform a search process
S33 display the menu of search results
S34 item designated?
S35 record the selected item
S36 display the homepage of the selected item
S37 record the URL address
S38 registration key ON?
S39 URL address recorded?
S40 two URL addresses related?
S41 determine a location for additional storage
S42 perform an information adding storage process
S43 perform a conventional registration process
S44 sub menu definition entry exist?
END

[FIG. 6]
definition entry
top/menu definition entry
 screen layout definition information
 number of categories
 number of registered members
 category code
 category name (title)
 category code
20 menu display item (title)
21 presence or absence of sub menu/menu number of sub menu
22 presence or absence of a registered item/menu number of the item
23 additional selection flag/additional menu code
24 search character string and search condition
 (and/or) *1 or more*

sub menu definition entry group

menu number
screen layout definition information
number of registered members
25 menu display item (title)
additional selection flag/additional menu code
presence or absence of sub menu/menu number of
sub menu
presence or absence of a registered item/menu
number of the registered item
search character string and search condition
(and/or) *1 or more*

additional menu definition entry
screen layout definition information
the number of menus
additional menu code
menu name (title)
additional menu code
the number of registered members
26 menu display item (title)
27 search character string (and/or) *1 or more*

search process definition entry
31-1 layout definition information of the menu
screen of search results
31-2 search result data layout definition
search engine start format definition

definition entry of registered items
registered item menu number
the number of registered members
28 page title
29 URL address
30 introduction of the page

[FIG. 7]

First-level menu

Living	entertainment	travel/sightseeing
Shopping	health	education/childcare

Budget housing problem solving

Second-level menu

Living

newspaper articles
weather forecasts
timetables
Look up telephone numbers
Look up postcodes
Send a telegram
Learn social manners
Learn social welfare
Keep a pet
Ship goods
TV program time schedule
radio program time schedule
traffic information
call a taxi
dishes to be delivered
weddings and funerals
bookstores/second-hand book stores
voluntary tasks
beauty tips
be environment-friendly

entertainment

fortune-telling
hobbies
gambling
gourmet
family outing
alcohol
art
lessons
have a night out
watch games/see concerts
cigarettes

travel/sightseeing

tour information/travel agents
transportation conditions
rent-a-car
hotels and accommodations
travel goods
untrodden spots

housekeeping
recipes
tableware
cloth cleaning
washing powder/liquid
toilet goods
kitchen goods
household appliances
cleaning goods
deodorants/insecticides
sewing kits

shopping
department stores
commodities
specialty stores
mail order shopping

health
hospitals/clinics
health care
Western medicine
Oriental medicine

Education/childcare
Nursing
Private schools/exams
Driving schools
Licenses
School information
Further education
Academic/reference books

[FIG. 8A]

first-level menu

living	entertainment
shopping	health
budget	housing

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 8B]

living

newspaper articles
weather forecasts
bus timetable
JR timetable
Look up telephone numbers
Look up postcodes
Send a telegram
TV program time schedule
radio program time schedule
traffic information
call a taxi
dishes to be delivered
weddings and funerals
books

return

advance

home

re-read

stop

connect

bookmark

open
save

[FIG. 8C]
Kanto region
Kinki region
Chubu region
Shikoku region

[FIG. 8D]
Weather forecasts
 Title
 Weather forecast for Kanto region
 Weekly weather forecast for Kanto region
 Contents
 Obtain weather information by a very simple
process
 Get timely weather forecast information issued
by the Meteorological Agency

return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 8E]
Page of "Weather Forecast for Kanto Region"
return
advance
home
re-read
stop
connect
bookmark

open
save

[FIG. 9]

検索文字列	search character string
タイトル	title
文字列	character string
制御表	control table
天気予報を知る	weather forecasts
32	weather forecast (and)
関東	Kanto
33	Kanto/Kanto region
検索文字列バッファ	search character string buffer
34	weather forecast & Kanto/Kanto region
検索文字列の構築	construction of a search character string
検索エンジン投入コマンド形式定義	search engine start command format definition
実際の送信コマンドの構築	construction of an actual transmission command
DATA に検索文字列を代入	Substitute the search character string in data
36	<u>http://search.or.jp/Title?=weather forecast &</u> Kanto/Kanto region

[FIG. 10]

START

S50	activate the browser
S51	display a menu
S52	item designated?
S53	record the selected item
S54	item registered?
S55	display a registration menu
S56	item designated for registration?
S57	display the homepage of the selected registration item
S58	sub menu definition entry exist?
S59	another search process necessary?

END

FIG. 5 の S26 ～ to S26 of FIG. 5

[FIG. 11A]

first-level menu

living	entertainment
shopping	health
budget	housing

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 11B]

living

newspaper articles
weather forecasts
bus timetable
JR timetable
Look up telephone numbers
Look up postcodes
Send a telegram
TV program time schedule
radio program time schedule
traffic information
call a taxi
dishes to be delivered
weddings and funerals
books

return

advance

home

re-read

stop

connect
bookmark
open
save

[FIG. 11C]
weather forecast for Kanto region
another search process

[FIG. 11D]
Page of "Weather Forecast for Kanto Region"
return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 12]
START
S50 activate the browser
S51 display a menu
S52 item designated?
S53 record the selected item
S54 item registered?
S55 display a registration menu
S58 sub menu definition entry exist?
S60 item designated for deletion?
S61 delete the selected delete item from the
control table and the definition entry
END

[FIG. 13]
START
S20 activate the browser
S70 read a definition entry and produce a

control table

S71 display the menu by the browser
S72 save a selection record
S62 sub menu page exist?
S26 additional selection flag ON?
S27 display the additional menu
S28 item designated?
S73 construct a search character string
S74 save the selection record
S75 perform a search process
S76 display a menu of search results
S77 item designated?
S36 display the homepage of the selected item
S37 record the URL address
S38 registration key ON?
S39 URL address recorded?
S40 two URL addresses related?
S78 determine a location for additional
storage
S79 perform an information adding storage
process
S43 perform a conventional registration
process
END

[FIG. 14A]

first-level menu

living	entertainment
shopping	health
budget	housing

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 14B]

living

- newspaper articles
- weather forecasts
- bus timetable
- JR timetable
- Look up telephone numbers
- Look up postcodes
- Send a telegram
- TV program time schedule
- radio program time schedule
- traffic information
- call a taxi
- dishes to be delivered
- weddings and funerals
- books

return

advance

home

re-read

stop

connect

bookmark

open

save

[FIG. 14C]

Kanto region

Kinki region

Chubu region

Shikoku region

[FIG. 14D]

search engine page

advertisement

search keyword Kanto region

weather forecast for Kanto region

weather information can be obtained through a very simple operation

return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 14E]

Page of "Weather Forecast for Kanto Region"

return
advance
home
re-read
stop
connect
bookmark
open
save

[FIG. 15A]

- 1) living
- 2) newspaper articles
- 3) politics

定義体／制御表 definition entry/control table

起点 start point

URL アドレスを. . .

Register the URL address in a group below the "politics"

URL アドレス URL address

[FIG. 15B]

- 1) living
- 2) weather forecast

3) Kanto region

定義体／制御表 definition entry/control table

起点 start point

一致したもの. . . produced under a corresponding item

URL アドレスを. . . register the URL address in a group under the "Kanto region"

2) newspaper articles

3) politics

URL アドレス URL address

[FG. 16]

START

S80 clear a memo region

S81 "selection record" exist?

S82 read one selection record

S83 the same level number exist on the same level in the definition entry and the control table

S84 produce a level without a selected item

S85 a selected item of the same name as the selection record exist on the same level?

S86 produce the selected item in the definition entry and the control table

S87 record the location of the selected item

S88 move the read start position to the next in the selection record

S89 memo region cleared?

S90 register homepage information (such as the URL address) under the location of the recorded selected item

END

[FIG. 17]

START

S20 activate the browser

S71 display the menu by the browser

S72 save a selection record

S75 perform a search process

S76 display the menu of search results

S77 item designated?
S36 display the homepage of the selected item
S37 record the URL address
S38 registration key ON?
S39 URL address recorded?
S40 two URL addresses related?
S90 no definition entry and control table
exist?
S91 produce a definition entry and a control
table
S92 determine the location for additional
storage
S93 perform an information adding storage
process
S43 perform a conventional registration
process
END